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Date:

August 21, 2001

Fax #

703-308-7751

Pages 3

From:

SCULLY, SCOTT, MURPHY & PRESSER

Re: Martin Frederick Pera

U.S. Patent Appln. No.: 09/885,679

IMPROVED METHODS OF CULTURING

EMBRYONIC STEM CELLS AND CONTROLLED DIFFERENTIATION

Our Docket: 14727

COMMENTS:

The Filing Receipt for the above-identified Patent Application has two words in the title incorrect, the first word is (methods and the other is differentiation). The title should read: **Title:** Methods of culturing embryonic stem cells and controlled differentiation.

Please send to us a corrected Filing Receipt with the title to read: Title: Methods of culturing embryonic stem cells and controlled differentiation.

Thank you.

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ATTY.DOCKET.NO DRAWINGS IND CLAIMS TOT CLAIMS GRP ART UNIT FIL FEE REC'D FILING DATE APPLICATION NUMBER 14727 19. 1976 06/20/2001 1636 09/885,679

CONFIRMATION NO. 6362

FILING RECEIPT

OC0000000006419540°

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Date Mailed: 08/14/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Martin Frederick Pera, Residence Not Provided;

Domestic Priority data as claimed by applicant

Foreign Applications

AUSTRALIA PQ8242 06/20/2000 AUSTRALIA PR1327 11/08/2000

If Required, Foreign Filing License Granted 08/13/2001

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

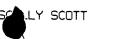
Title

Method of culturing embryonic stem cells and controlled differntiation

turing Embryonic Stem

Preliminary Class

P.03/03



IMPROVED METHODS OF CULTURING EMBRYONIC STEM CELLS AND CONTROLLED DIFFERENTIATION

FIELD OF THE INVENTION

The present invention relates to a method of culturing embryonic stem (ES) cells particularly to improve stem cell maintenance and persistence in culture. The method also provides a culture of ES cells prepared by the method as well as differentiated cells derived from the embryonic cells resulting from directed differentiation procedures provided by the present invention.

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BACKGROUND OF THE INVENTION

The production of human ES cells which can be either maintained in an undifferentiated state or directed to undergo differentiation into extraembryonic or somatic lineages in vitro allows for the study of the cellular and molecular biology of early human development, functional genomics, generation of differentiated cells from the stem cells for use in transplantation or drug screening and drug discovery in vitro.

In general, stem cells are undifferentiated cells which can give rise to a succession of mature functional cells. For example, a haematopoietic stem cell may give rise to any of the different types of terminally differentiated blood cells. ES cells are derived from the embryo and are pluripotent, thus possessing the capability of developing into any cell.

Much attention recently has been devoted to the potential applications of stem cells in biology and medicine. The properties of pluripotentiality and immortality are unique to ES cells and enable investigators to approach many issues in human biology and medicine for the first time. ES cells potentially can address the shortage of donor tissue for use in transplantation procedures. particularly where no alternative culture system can support growth of the required committed stem cell. However, it must be noted that almost all of the wide ranging